(19)

(11) Publication number:

PATENT ABSTRACTS OF JAPAN

(21) Application number: **63073398**

(51) Intl. Cl.: **H01L 21/20** H01L 21/205

(22) Application date: **29.03.88**

(30) Priority:

(43) Date of application publication: **02.10.89**

(84) Designated contracting states:

(71) Applicant: **NIPPON TELEGR & <NTT>**

(72) Inventor: **OMACHI TOKURO**
KADOTA YOSHIAKI
OKAMOTO HIROSHI
WATANABE YOSHIO

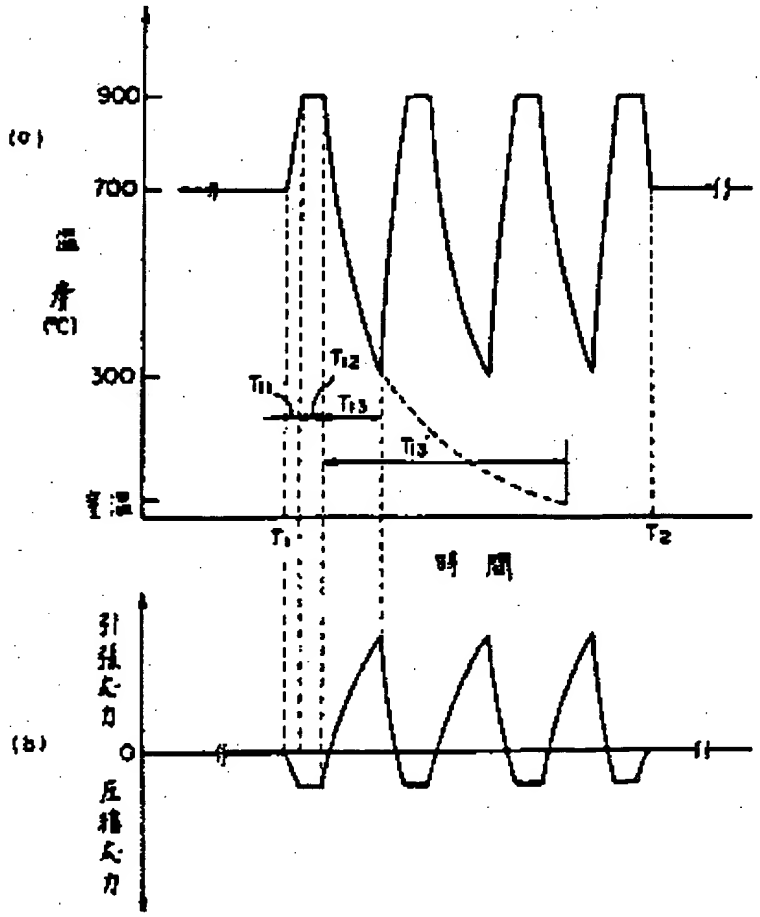
(74) Representative:

(54) HEAT TREATMENT METHOD

(57) Abstract:

PURPOSE: To effectively accomplish the decrease in dislocation of a defect in a short period by a method wherein the epitaxially grown layer of a III-V compound semiconductor is formed on an Si substrate, and a heat treatment process at a specific temperature and for a specific period is repeated at least once.

CONSTITUTION: A GaAs layer is epitaxially grown on an Si substrate by conducting an organic metal vapor-growth method at about 700°C for the time T1=45minutes. The film thickness of the above-mentioned layer is set at 1.5μm for improvement of crystallizability by heat treatment. Then, temperature is raised to 900°C in the period of time T11=3minutes, said temperature is maintained for T11=5minutes, and the cooled down to 300°C in T13=12minutes. T13=50minutes are required using



Patent Plaques

JP1246818A2: HEAT TREATMENT METHOD

View Images (1 pages) | View INPADOC only

Country: **JP** Japan

Kind:

Inventor(s): **OMACHI TOKURO**
KADOTA YOSHIAKI
OKAMOTO HIROSHI
WATANABE YOSHIO

Applicant(s): **NIPPON TELEGR & TELEPH CORP <NTT>**
News, Profiles, Stocks and More about this company

Issued/Filed Dates: **Oct. 2, 1989** / March 29, 1988

Application Number: **JP1988000073398**

IPC Class: **H01L 21/20;** H01L 21/205; H01L 21/324;

Abstract: **Purpose**: To effectively accomplish the decrease in dislocation of a defect in a short period by a method wherein the epitaxially grown layer of a III-V compound semiconductor is formed on an Si substrate, and a heat treatment process at a specific temperature and for a specific period is repeated at least once.
Constitution: A GaAs layer is epitaxially grown on an Si substrate by conducting an organic metal vapor-growth method at about 700° C for the time T1=45minutes. The film thickness of the above-mentioned layer is set at 1.5μm for improvement of crystallizability by heat treatment. Then, temperature is raised to 900°C in the period of time T11=3minutes, said temperature is maintained for T11=5minutes, and the cooled down to 300°C in T13=12minutes. T13=50minutes are required using the method heretofore in use, and the cooling period of time is sharply reduced. The above-mentioned cycle is repeated four times, and the heat treatment for decreasing crystal dislocation is completed. Besides, a GaAs device layer of 1,5μm in thickness is epitaxially grown in the period of time T3=45minutes, and an excellent thin film crystal of 3μm in total thickness is obtained.

Other Abstract Info: DERABS C89-329813 DERC89-329813

Foreign References: Show the 1 patents that reference this one